periods. Interfacing to the nervous system will undoubtedly be done sooner or later, with or without this project. The only claim we make is that we are doing our best to achieve this goal.

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Engineering Design

There is nothing wrong with pointing out that U.S. competitiveness problems in manufactured goods are caused in part by high interest rates, poor manufacturing practices, trade laws, labor costs, labor-management issues, and the like (Philip H. Abelson, "The lost U.S. excellence in manufacturing," Editorial, 13, Apr., p. 125). However, to omit engineering design as a major contributor is like blaming everyone but the architect for a bad building or everyone but the editor for a bad magazine. U.S. firms that have met the competitiveness issue successfully (for example, Xerox, Hewlett-Packard, Carrier, and parts of General Electric) have done so by dramatic reformation of their engineering design practices. Competitive product quality, cost, and market timeliness derive primarily from engineering design. In fact, exclusive focus on other issues (financial, legal, and especially manufacturing) is a major reason some firms do not make the changes necessary to reform their design processes and practices. Besides, it is not clear that we ever had "excellence" in manufactured goods; perhaps we just had very little competition and so could get away with neglecting our engineering design infrastructure, including education and research as well as industrial practice. No more.

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Global Warming Questions

The 30 March editorial "Uncertainties about global warming" by Philip H. Abelson (p. 1529) puzzled me in several ways.

Why should attention be concentrated on the global average warming, to the exclusion of other appreciable effects of the $CO_2 + CH_4$ increase indicated by the models of James Hansen *et al.*, S. Manabe *et al.*, and others, such as the poleward shift of rainfall?

Why should the definition of caution in the face of uncertainty be the preservation of existing economic patterns—of benefit to the older and the richer, rather than the reduction of risk to the environment and resources—of benefit to the younger and the poorer?

Why should climatic computer models be rigorous before action is undertaken? It is my perception from what technological history I've read that if mankind had always insisted on its wise men being rigorous, we'd still be living in caves and facing 40-year life expectancies.

Why should adverse balances of trade reduce the chances of lesser developed countries' contributing to the increase of CO_2? Low-grade resources (lignite, peat, and rain forests) are widespread in these countries. Why wouldn't these countries imitate Ireland and build power plants to burn peat, despite its being much more expensive than imported coal and oil (especially since the labor-intensive activity of peat-digging helps relieve unemployment)?

How do biomass techniques help reduce CO_2 increase? Today vigorous burning of biomass has put three lesser developed countries (Brazil, Indonesia, and Colombia) in the top ten of atmospheric CO_2 contributors.

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Unscrambling an Egg

In M. Mitchell Waldrop's article "Spontaneous order, evolution, and life" (Research News, 30 Mar., p. 1543), he "roughly paraphrased" the Second Law of Thermodynamics as "you can't unscramble an egg." An egg can be unscrambled, and the Second Law violated, by feeding it to a hen.

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